RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/515,363C

DATE: 02/24/2003
TIME: 13:44:43

Input Set : **A:\#427587 v1 - A34614 Sequence Listing.txt**
Output Set: **N:\CRF4\02242003\I515363C.raw**

```
 4 <110> APPLICANT: Fisher, Paul B.
 5        Kang, Dong-Chul
 6        Gopalkrishnan, Rahul V.
 8 <120> TITLE OF INVENTION: MELANOMA DIFFERENTIATION ASSOCIATED
 9        GENE-5 AND PROMOTER AND USES THEREOF
12 <130> FILE REFERENCE: A34614 (070050.1690)
15 <140> CURRENT APPLICATION NUMBER: 09/515,363C
16 <141> CURRENT FILING DATE: 2000-02-29
18 <160> NUMBER OF SEQ ID NOS: 25
20 <170> SOFTWARE: FastSEQ for Windows Version 4.0
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 3365
24 <212> TYPE: DNA
25 <213> ORGANISM: homo sapiens
27 <400> SEQUENCE: 1
28 gcgcgccggc ctgagagccc tgtggacaac ctcgtcattg tcaggcacag agcggtagac 60
29 cctgcttctc taagtgggca gcggacagcg gcacgcacat ttcacctgtc ccgcagacaa 120
30 cagcaccatc tgcttgggag aaccctctcc cttctctgag aaagaaagat gtcgaatggg 180
31 tattccacag acgagaattt ccgctatctc atctcgtgct tcagggccag ggtgaaaatg 240
32 tacatccagg tggagcctgt gctggactac ctgacctttc tgcctgcaga ggtgaaggag 300
33 cagattcaga ggacagtcgc cacctccggg aacatgcagg cagttgaact gctgctgagc 360
34 accttggaga agggagtctg gcaccttggt tggactcggg aattcgtgga ggccctccgg 420
35 agaaccggca gccctctggc cgcccgctac atgaaccctg agctcacgga cttgccctct 480
36 ccatcgtttg agaacgctca tgatgaatat ctccaactgc tgaacctcct tcagcccact 540
37 ctggtggaca agcttctagt tagagacgtc ttggataagt gcatggagga ggaactgttg 600
38 acaattgaag acagaaaccg gattgctgct gcagaaaaca atggaaatga atcaggtgta 660
39 agagagctac taaaaaggat tgtgcagaaa gaaaactggt tctctgcatt tctgaatgtt 720
40 cttcgtcaaa caggaaacaa tgaacttgtc caagagttaa caggctctga ttgctcagaa 780
41 agcaatgcag agattgagaa tttatcacaa gttgatggtc ctcaagtgga gagcaactt 840
42 ctttcaacca cagttcagcc aaatctggag aaggaggtct ggggcatgga gaataactca 900
43 tcagaatcat cttttgcaga ttcttctgta gtttcagaat cagacacaag tttggcagaa 960
44 ggaagtgtca gctgcttaga tgaaagtctt ggacataaca gcaacatggg cagtgattca 1020
45 ggcaccatgg gaagtgattc agatgaagag aatgtggcag caagagcatc cccggagcca 1080
46 gaactccagc tcaggcctta ccaaatggaa gttgcccagc cagccttgga agggaagaat 1140
47 atcatcatct gcctccctac agggagtgga aaaaccagag tggctgttta cattgccaag 1200
48 gatcacttag acaagaagaa aaaagcatct gagcctggaa aagttatagt tcttgtcaat 1260
49 aaggtactgc tagttgaaca gctcttccgc aaggagttcc aaccattttt gaagaaatgg 1320
50 tatcgtgtta ttggattaag tggtgatacc caactgaaaa tatcatttcc agaagttgtc 1380
51 aagtcctgtg atattattat cagtacagct caaatccttg aaaactccct cttaaacttg 1440
52 gaaaatggag aagatgctgg tgttcaattg tcagactttt ccctcattat cattgatgaa 1500
53 tgtcatcaca ccaacaaaga agcagtgtat aataacatca tgaggcatta tttgatgcag 1560
54 aagttgaaaa acaatagact caagaaagaa aacaaaccag tgattcccct tcctcagata 1620
55 ctgggactaa cagcttcacc tggtgttgga ggggccacga agcaagccaa agctgaagaa 1680
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```
56 cacatttttaa aactatgtgc caatcttgat gcatttacta ttaaaactgt taaagaaaac 1740
57 cttgatcaac tgaaaaacca aatacaggag ccatgcaaga agtttgccat tgcagatgca 1800
58 accagagaag atccatttaa agagaaactt ctagaaataa tgacaaggat tcaaacttat 1860
59 tgtcaaatga gtccaatgtc agattttgga actcaaccct atgaacaatg ggccattcaa 1920
60 atggaaaaaa aagctgcaaa aaaaggaaat cgcaaagaac gtgtttgtgc agaacatttg 1980
61 aggaagtaca atgaggccct acaaattaat gacacaattc gaatgataga tgcgtatact 2040
62 catcttgaaa ctttctataa tgaagagaaa gataagaagt ttgcagtcat agaagatgat 2100
63 agtgatgagg gtggtgatga tgagtattgt gatggtgatg aagatgagga tgatttaaag 2160
64 aaacctttga aactggatga aacagataga tttctcatga ctttattttt tgaaaacaat 2220
65 aaaatgttga aaaggctggc tgaaaaccca gaatatgaaa atgaaaagct gaccaaatta 2280
66 agaaatacca taatggagca atatactagg actgaggaat cagcacgagg aataatcttt 2340
67 acaaaaacac gacagagtgc atatgcgctt tcccagtgga ttactgaaaa tgaaaaattt 2400
68 gctgaagtag gagtcaaagc ccaccatctg attggagctg gacacagcag tgagttcaaa 2460
69 cccatgacac agaatgaaca aaaagaagtc attagtaaat ttcgcactgg aaaaatcaat 2520
70 ctgcttatcg ctaccacagt ggcagaagaa ggtctggata ttaaagaatg taacattgtt 2580
71 atccgttatg gtctcgtcac caatgaaata gccatggtcc aggcccgtgg tcgagccaga 2640
72 gctgatgaga gcacctacgt cctggttgct cacagtggtt caggagttat cgaacatgag 2700
73 acagttaatg atttccgaga gaagatgatg tataaagcta tacattgtgt tcaaaatatg 2760
74 aaaccagagg agtatgctca taagattttg gaattacaga tgcaaagtat aatggaaaag 2820
75 aaaatgaaaa ccaagagaaa tattgccaag cattacaaga ataacccatc actaataact 2880
76 ttcctttgca aaaactgcag tgtgctagcc tgttctgggg aagatatcca tgtaattgag 2940
77 aaaatgcatc acgtcaatat gaccccagaa ttcaaggaac tttacattgt aagagaaaac 3000
78 aaagcactgc aaaagaagtg tgccgactat caaataaatg gtgaaatcat ctgcaaatgt 3060
79 ggccaggctt ggggaacaat gatggtgcac aaaggcttag atttgccttg tctcaaaata 3120
80 aggaattttg tagtggtttt caaaaataat tcaacaaaga aacaatacaa aaagtgggta 3180
81 gaattaccta tcacatttcc caatcttgac tattcagaat gctgtttatt tagtgatgag 3240
82 gattagcact tgattgaaga ttcttttaaa atactatcag ttaaacattt aatatgatta 3300
83 tgattaatgt attcattatg ctacagaact gacataagaa tcaataaaat gattgtttta 3360
84 ctctg                                                              3365
86 <210> SEQ ID NO: 2
87 <211> LENGTH: 1025
88 <212> TYPE: PRT
89 <213> ORGANISM: homo sapiens
91 <400> SEQUENCE: 2
92 Met Ser Asn Gly Tyr Ser Thr Asp Glu Asn Phe Arg Tyr Leu Ile Ser
93  1                   5                   10                  15
94 Cys Phe Arg Ala Arg Val Lys Met Tyr Ile Gln Val Glu Pro Val Leu
95              20                  25                  30
96 Asp Tyr Leu Thr Phe Leu Pro Ala Glu Val Lys Glu Gln Ile Gln Arg
97          35                  40                  45
98 Thr Val Ala Thr Ser Gly Asn Met Gln Ala Val Glu Leu Leu Leu Ser
99      50                  55                  60
100 Thr Leu Glu Lys Gly Val Trp His Leu Gly Trp Thr Arg Glu Phe Val
101 65                  70                  75                  80
102 Glu Ala Leu Arg Arg Thr Gly Ser Pro Leu Ala Ala Arg Tyr Met Asn
103              85                  90                  95
104 Pro Glu Leu Thr Asp Leu Pro Ser Pro Ser Phe Glu Asn Ala His Asp
105              100                 105                 110
106 Glu Tyr Leu Gln Leu Leu Asn Leu Leu Gln Pro Thr Leu Val Asp Lys
```

RAW SEQUENCE LISTING
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DATE: 02/24/2003
TIME: 13:44:43

Input Set : **A:\#427587 v1 - A34614 Sequence Listing.txt**
Output Set: **N:\CRF4\02242003\I515363C.raw**

```
107           115                   120                    125
108 Leu Leu Val Arg Asp Val Leu Asp Lys Cys Met Glu Glu Glu Leu Leu
109      130                   135                   140
110 Thr Ile Glu Asp Arg Asn Arg Ile Ala Ala Ala Glu Asn Asn Gly Asn
111 145                   150                   155                   160
112 Glu Ser Gly Val Arg Glu Leu Leu Lys Arg Ile Val Gln Lys Glu Asn
113                   165                   170                   175
114 Trp Phe Ser Ala Phe Leu Asn Val Leu Arg Gln Thr Gly Asn Asn Glu
115                   180                   185                   190
116 Leu Val Gln Glu Leu Thr Gly Ser Asp Cys Ser Glu Ser Asn Ala Glu
117             195                   200                   205
118 Ile Glu Asn Leu Ser Gln Val Asp Gly Pro Gln Val Glu Glu Gln Leu
119      210                   215                   220
120 Leu Ser Thr Thr Val Gln Pro Asn Leu Glu Lys Glu Val Trp Gly Met
121 225                   230                   235                   240
122 Glu Asn Asn Ser Ser Glu Ser Ser Phe Ala Asp Ser Ser Val Val Ser
123                   245                   250                   255
124 Glu Ser Asp Thr Ser Leu Ala Glu Gly Ser Val Ser Cys Leu Asp Glu
125             260                   265                   270
126 Ser Leu Gly His Asn Ser Asn Met Gly Ser Asp Ser Gly Thr Met Gly
127      275                   280                   285
128 Ser Asp Ser Asp Glu Glu Asn Val Ala Ala Arg Ala Ser Pro Glu Pro
129      290                   295                   300
130 Glu Leu Gln Leu Arg Pro Tyr Gln Met Glu Val Ala Gln Pro Ala Leu
131 305                   310                   315                   320
132 Glu Gly Lys Asn Ile Ile Ile Cys Leu Pro Thr Gly Ser Gly Lys Thr
133                   325                   330                   335
134 Arg Val Ala Val Tyr Ile Ala Lys Asp His Leu Asp Lys Lys Lys Lys
135             340                   345                   350
136 Ala Ser Glu Pro Gly Lys Val Ile Val Leu Val Asn Lys Val Leu Leu
137      355                   360                   365
138 Val Glu Gln Leu Phe Arg Lys Glu Phe Gln Pro Phe Leu Lys Lys Trp
139      370                   375                   380
140 Tyr Arg Val Ile Gly Leu Ser Gly Asp Thr Gln Leu Lys Ile Ser Phe
141 385                   390                   395                   400
142 Pro Glu Val Val Lys Ser Cys Asp Ile Ile Ile Ser Thr Ala Gln Ile
143                   405                   410                   415
144 Leu Glu Asn Ser Leu Leu Asn Leu Glu Asn Gly Glu Asp Ala Gly Val
145             420                   425                   430
146 Gln Leu Ser Asp Phe Ser Leu Ile Ile Ile Asp Glu Cys His His Thr
147      435                   440                   445
148 Asn Lys Glu Ala Val Tyr Asn Asn Ile Met Arg His Tyr Leu Met Gln
149      450                   455                   460
150 Lys Leu Lys Asn Asn Arg Leu Lys Lys Glu Asn Lys Pro Val Ile Pro
151 465                   470                   475                   480
152 Leu Pro Gln Ile Leu Gly Leu Thr Ala Ser Pro Gly Val Gly Gly Ala
153             485                   490                   495
154 Thr Lys Gln Ala Lys Ala Glu Glu His Ile Leu Lys Leu Cys Ala Asn
155             500                   505                   510
```

RAW SEQUENCE LISTING   DATE: 02/24/2003
PATENT APPLICATION: **US/09/515,363C**   TIME: 13:44:43

Input Set : **A:\#427587 v1 - A34614 Sequence Listing.txt**
Output Set: **N:\CRF4\02242003\I515363C.raw**

```
156 Leu Asp Ala Phe Thr Ile Lys Thr Val Lys Glu Asn Leu Asp Gln Leu
157         515             520             525
158 Lys Asn Gln Ile Gln Glu Pro Cys Lys Lys Phe Ala Ile Ala Asp Ala
159         530             535             540
160 Thr Arg Glu Asp Pro Phe Lys Glu Lys Leu Leu Glu Ile Met Thr Arg
161 545             550             555             560
162 Ile Gln Thr Tyr Cys Gln Met Ser Pro Met Ser Asp Phe Gly Thr Gln
163             565             570             575
164 Pro Tyr Glu Gln Trp Ala Ile Gln Met Glu Lys Lys Ala Ala Lys Lys
165             580             585             590
166 Gly Asn Arg Lys Glu Arg Val Cys Ala Glu His Leu Arg Lys Tyr Asn
167         595             600             605
168 Glu Ala Leu Gln Ile Asn Asp Thr Ile Arg Met Ile Asp Ala Tyr Thr
169         610             615             620
170 His Leu Glu Thr Phe Tyr Asn Glu Glu Lys Asp Lys Lys Phe Ala Val
171 625             630             635             640
172 Ile Glu Asp Asp Ser Asp Glu Gly Gly Asp Asp Glu Tyr Cys Asp Gly
173             645             650             655
174 Asp Glu Asp Glu Asp Asp Leu Lys Lys Pro Leu Lys Leu Asp Glu Thr
175             660             665             670
176 Asp Arg Phe Leu Met Thr Leu Phe Phe Glu Asn Asn Lys Met Leu Lys
177         675             680             685
178 Arg Leu Ala Glu Asn Pro Glu Tyr Glu Asn Glu Lys Leu Thr Lys Leu
179         690             695             700
180 Arg Asn Thr Ile Met Glu Gln Tyr Thr Arg Thr Glu Glu Ser Ala Arg
181 705             710             715             720
182 Gly Ile Ile Phe Thr Lys Thr Arg Gln Ser Ala Tyr Ala Leu Ser Gln
183             725             730             735
184 Trp Ile Thr Glu Asn Glu Lys Phe Ala Glu Val Gly Val Lys Ala His
185             740             745             750
186 His Leu Ile Gly Ala Gly His Ser Ser Glu Phe Lys Pro Met Thr Gln
187         755             760             765
188 Asn Glu Gln Lys Glu Val Ile Ser Lys Phe Arg Thr Gly Lys Ile Asn
189         770             775             780
190 Leu Leu Ile Ala Thr Thr Val Ala Glu Glu Gly Leu Asp Ile Lys Glu
191 785             790             795             800
192 Cys Asn Ile Val Ile Arg Tyr Gly Leu Val Thr Asn Glu Ile Ala Met
193             805             810             815
194 Val Gln Ala Arg Gly Arg Ala Arg Ala Asp Glu Ser Thr Tyr Val Leu
195             820             825             830
196 Val Ala His Ser Gly Ser Gly Val Ile Glu His Glu Thr Val Asn Asp
197         835             840             845
198 Phe Arg Glu Lys Met Met Tyr Lys Ala Ile His Cys Val Gln Asn Met
199         850             855             860
200 Lys Pro Glu Glu Tyr Ala His Lys Ile Leu Glu Leu Gln Met Gln Ser
201 865             870             875             880
202 Ile Met Glu Lys Lys Met Lys Thr Lys Arg Asn Ile Ala Lys His Tyr
203             885             890             895
204 Lys Asn Asn Pro Ser Leu Ile Thr Phe Leu Cys Lys Asn Cys Ser Val
```

RAW SEQUENCE LISTING   DATE: 02/24/2003
PATENT APPLICATION: **US/09/515,363C**   TIME: 13:44:43

Input Set : **A:\#427587 v1 - A34614 Sequence Listing.txt**
Output Set: **N:\CRF4\02242003\I515363C.raw**

```
205              900              905              910
206 Leu Ala Cys Ser Gly Glu Asp Ile His Val Ile Glu Lys Met His His
207         915              920              925
208 Val Asn Met Thr Pro Glu Phe Lys Glu Leu Tyr Ile Val Arg Glu Asn
209     930              935              940
210 Lys Ala Leu Gln Lys Lys Cys Ala Asp Tyr Gln Ile Asn Gly Glu Ile
211 945              950              955              960
212 Ile Cys Lys Cys Gly Gln Ala Trp Gly Thr Met Met Val His Lys Gly
213              965              970              975
214 Leu Asp Leu Pro Cys Leu Lys Ile Arg Asn Phe Val Val Val Phe Lys
215         980              985              990
216 Asn Asn Ser Thr Lys Lys Gln Tyr Lys Lys Trp Val Glu Leu Pro Ile
217         995              1000             1005
218 Thr Phe Pro Asn Leu Asp Tyr Ser Glu Cys Cys Leu Phe Ser Asp Glu
219     1010             1015             1020
220 Asp
221 1025
224 <210> SEQ ID NO: 3
225 <211> LENGTH: 1036
226 <212> TYPE: DNA
227 <213> ORGANISM: homo sapiens
229 <220> FEATURE:
230 <221> NAME/KEY: misc_feature
231 <222> LOCATION: 551
232 <223> OTHER INFORMATION: n = A,T,C or G
234 <400> SEQUENCE: 3
235 gcacattttg gcctacaaag gaccttattg ttaaggcaga acctgctggg aaaacaaaat 60
236 atccgccgga ggagctttgt agagcgttgg tcttggtgtc agagagaatt cgctttcctt 120
237 ttctgtttcc cgcggtgtcc ttaaccaaag gcctcctctc ttcacccgcc ccgaccaaaa 180
238 ggtggcgtct ccctgaggaa actccctccc cgccaggcag attacgttta caaagtcctg 240
239 agaagagaat cgaaacagaa accaaagtca ggcaaactct gtaagaactg cctgacagaa 300
240 agctggactc aaagctccta cccgagtgtg cagcaggatc gccccggtcc gggacccccag 360
241 gcgcacaccg cagagtccaa agtgccgcgc ctgccggccg cacctgcctg ccgcggcccc 420
242 gcgcgccgcc ccgctgccca cctgcccgcc tgcccacctg cccaggtgcg agtgcagccc 480
243 cgcgcgccgg cctgagagcc ctgtggacaa cctcgtcatt gtcaggcaca gagcggtaga 540
W--> 244 ccctgcttct ntaagtgggc agcggacagc ggcacgcaca tttcacctgt cccgcagaca 600
245 acagcaccat ctgcttggga gaaccctctc ccttctctga gaaagaaaga tgtcgaatgg 660
246 gtattccaca gacgagaatt tccgctatct catctcgtgc ttcagggcca gggtgaaaat 720
247 gtacatccag gtggagcctg tgctggacta cctgaccttt ctgcctgcag aggtgaagga 780
248 gcagattcag aggacagtcg ccacctccgg gaacatgcag gcagttgaac tgctgctgag 840
249 caccttggag aagggagtct ggcaccttgg ttggactcgg gaattcgtgg aggccctccg 900
250 gagaaccggc agccctctgg ccgcccgcta catgaaccct gagctcacgg acttgccctc 960
251 tccatcgttt gagaacgctc atgatgaata tctccaactg ctgaacctcc ttcagcccac 1020
252 tctggtggac aagctt                                                1036
254 <210> SEQ ID NO: 4
255 <211> LENGTH: 202
256 <212> TYPE: DNA
257 <213> ORGANISM: homo sapiens
259 <220> FEATURE:
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 02/24/2003
PATENT APPLICATION: US/09/515,363C   TIME: 13:44:44

Input Set : A:\#427587 v1 - A34614 Sequence Listing.txt
Output Set: N:\CRF4\02242003\I515363C.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 551
Seq#:4; N Pos. 33,73,107
Seq#:17; Xaa Pos. 8,9
Seq#:19; Xaa Pos. 1,2,3,5
Seq#:22; Xaa Pos. 3
Seq#:23; Xaa Pos. 6,7

VERIFICATION SUMMARY   DATE: 02/24/2003
PATENT APPLICATION: **US/09/515,363C**   TIME: 13:44:44

Input Set : **A:\#427587 v1 - A34614 Sequence Listing.txt**
Output Set: **N:\CRF4\02242003\I515363C.raw**

```
L:244 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:540
L:268 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4
L:272 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4
L:273 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
M:341 Repeated in SeqNo=4
L:609 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:613 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:17
L:617 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:17
L:618 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:0
L:643 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:647 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:19
L:651 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:19
L:655 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:19
L:659 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:19
L:660 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0
L:698 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:702 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:22
L:703 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0
L:715 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:719 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
L:723 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
L:724 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0
```